

SECRET

9 June 1964

MEMORANDUM FOR: Assistant for Photographic Analysis  
Chief, CIA/Photographic Intelligence Division

SUBJECT : Proposed Evaluation trip for the [ ] Change  
Detector

25X1A

1. The electronic change detector currently under development at [ ] is nearing completion. Present indications are that most of the system will be available for evaluation by the 30th of June. Previous experience with this device on the part of the contract monitors has indicated that it will be of considerable significance to our exploitation effort.

25X1A

2. After completion of the development, there are two stages that must be accomplished at the contractor's facility before it can be delivered. First, there will be an extensive testing of the equipment's performance; second, there will be approximately a one week training period for representatives from the operational groups planning to utilize the equipment. It is anticipated that the entire program will be completed and the equipment ready for delivery about the first week in August.

3. [ ] and the undersigned of the Plans and Development Staff have scheduled a trip [ ] for preliminary evaluation of the system. We are scheduled to depart the evening of the 29th of June and to return the evening of the 1st of July. It is felt that this particular visit would afford an ideal opportunity for representatives of the operational staff to also make a preliminary assessment of this device, in order that any significant oversights might be uncovered and that timely planning for the training phase may be accomplished.

25X1A

25X1A

4. It is, therefore, requested that your division designate a representative to accompany the PDS monitors for the purposes described above. It is probable that this aspect of the evaluation could be accomplished in one day, so it is recommended that their schedule be for departure on the evening of the 29th of June and return on the evening of the 30th. Please advise the Chief, Development Branch, P&DS of the identity of the individual chosen for this assignment.

Declass Review by NIMA/DOD

[ ]

Deputy Chief,  
Development Branch, P&DS

25X1A

Distribution:

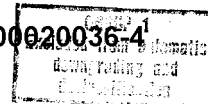
Addressees

1 Subject & Chrono File

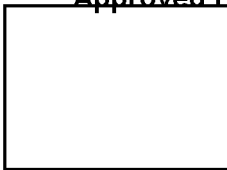
NPIC/P&DS/DB [ ]

(8 June 1964)

25X1A



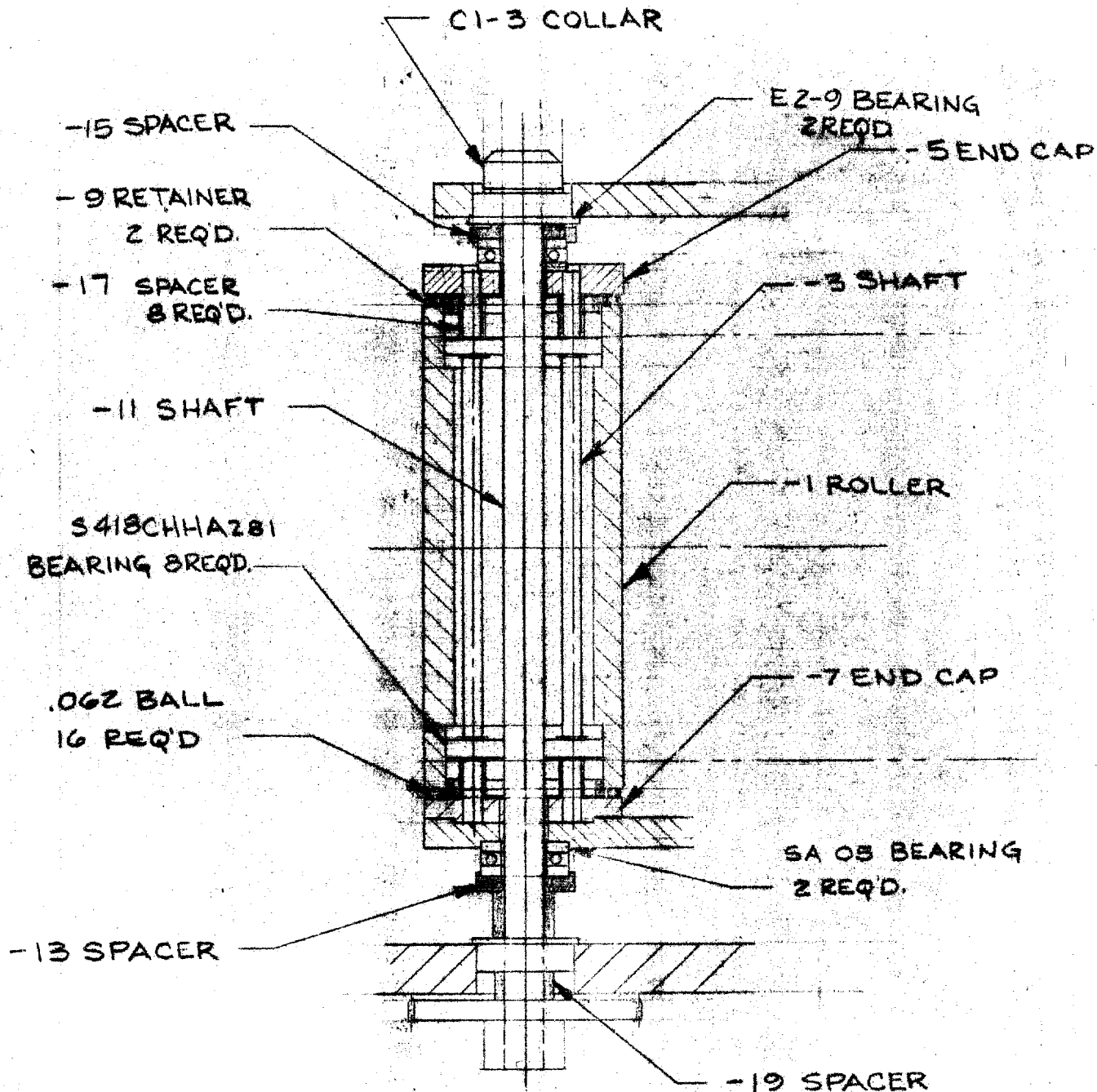
File in



Change Detector Contract

25 May 1964

25X1A



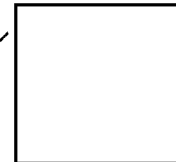
FILM DRIVE

25X1A

Picked up by



our visit to



19 May 1964

25X1A

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25X1A

CHANGE DETECTOR BRIEFING

06 OR MARCH 64

FOR

ILLEGIB

JOINT PROCUREMENT CONFERENCE



Photo 1 THIS IS THE CHANGE DETECTOR BEING MADE

25X1A

25X1A

IT IS DESIGNED TO COMPARE IMAGERY OF ANY GEOGRAPHIC AREA TAKEN AT DIFFERENT TIMES, AND AFTER AUTOMATIC REGISTRATION OF THE TWO IMAGES, TO DISPLAY THE CHANGES THAT HAVE TAKEN PLACE.

THE EQUIPMENT IS DESIGNED TO ACCOMMODATE 70MM FILMS HAVING RESOLUTIONS UP TO 50 LINES PER MM. IT WILL BE POSSIBLE TO DETECT CHANGES ON FILMS HAVING RESOLUTIONS GREATER THAN 50 LINES/MM BUT ANALYSIS OF THE CHANGES WILL NOT BE POSSIBLE ON THE PRESENT MACHINE. IT HAS BEEN ESTIMATED THAT TO INCREASE THE RESOLUTION TO 150 LINES PER MILLIMETER WOULD REQUIRE A RESEARCH AND DEVELOPMENT PROGRAM COVERING ABOUT 3 YEARS AND WOULD COST ABOUT

25X1A

Photo 2 THE CHANGE DETECTOR CONSOLE IS ABOUT 9 FEET LONG, A LITTLE OVER 6 FEET HIGH AND ABOUT 4 FEET DEEP.

IN OPERATION THE INTERPRETER SEATS HIMSELF AT THE RIGHT OF THE CONSOLE AND CONTROLS THAT PORTION OF THE FILM BEING EXAMINED BY THE JOY STICK. HE IS ABLE TO ZOOM UP ON ANY SELECTED AREA FOR DETAILED EXAMINATION BY MEANS OF THE TWO WAY SWITCH JUST TO THE LEFT OF THE JOYSTICK. CHANGES ARE INDICATED EITHER BY A MISS-MATCH OF THE TWO SIGNALS ON THE SAME SCREEN OR BY THE FLICKER COMPARISON TECHNIQUE. THESE CONTROLS ARE LOCATED JUST TO THE LEFT OF THE ZOOM SWITCH.

Photo 3

Photo 4

THIS IS A SCHEMATIC OF THE OPTICAL-MECHANICAL SYSTEM OF THE CHANGE DETECTOR. THE CRT AT THE BOTTOM IS A FLYING SPOT SCANNER WHICH ILLUMINATES EACH OF THE TWO FILMS. THE TWO FILM GATES WHICH ARE EACH MOVEABLE IN X, Y, AND Z PROVIDE

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HOLDERS FOR 1 - THE REFERENCE FILM WHICH WE SHALL PLACE ON THE RIGHT AND  
2 - THE COMPARISON FILM WITH THE CHANGES WE WILL THEN PLACE ON THE LEFT, THE  
SCALE OF THE TWO FILMS WILL THEN BE MATCHED BY MOVING ONE OR BOTH OF THE FILM  
HOLDERS (OR MAGAZINES) VERTICALLY ALONG ITS SUPPORTING RODS THE FILMS WILL BE  
ORIENTED BY ROTATING THE DOVE MIRROR. THE TWO FILMS WILL THEN BE REGISTERED  
BY SERVOS PHYSICALLY MOVING THE TWO FILM GATES IN AN X Y DIRECTION UNTIL A  
ROUGHMATCH OR CANCELLATION OF SIGNAL HAS BEEN ACHIEVED, AT THIS POINT THE  
ROTATING NUTATION WEDGES GO INTO ACTION AND DO AN AUTOMATIC CORRELATION OF THE  
TWO SCENES. THE DIFFERENCE BETWEEN THE TWO SCENES IS THEN DISPLAYED ON THE  
VIEWING SCREEN.

Photo 5

(THIS IS A BREADBOARD OF THE AUTOMATIC CORRELATION OPTICS AND MECHANISM)  
TWO NOVEL FEATURES OF THIS MACHINE WILL BE SHADOW REJECTION AND RASTER SUPPRES-  
SION OR, SPOT WOBBLE, THAT IS, THE SPOT WILL VIBRATE AT HIGH FREQUENCY BETWEEN  
THE LIMITS OF THE RASTER LINES IN SUCH A MANNER THAT WHEN VIEWED FROM A SHORT  
DISTANCE THE RASTER LINES APPEAR TO BLEND IN TO EACH OTHER.

Photo 6

FABRICATION OF THE CONSOLE IS COMPLETED, FABRICATION AND INSTALLATION OF  
THE COMPONENTS IN THE CONSOLE IS UNDERWAY. BECAUSE OF THE 9 FOOT LENGTH OF  
THE CONSOLE THE BASIC FRAME HAS BEEN CUT AT THE JUNCTION OF THE OPTICAL-  
MECHANICAL AND READ-OUT ASSEMBLIES, THEY WILL BE RE-UNITED AFTER DELIVERY OF  
THE EQUIPMENT TO ITS DESTINATION.

THERE STILL REMAINS ABOUT TWO MAN MONTHS WORK ON THE DESIGN OF THE SHADOW  
REJECTION AND RASTER SUPPRESSION CIRCUITS.

DELIVERY OF THE CHANGE DETECTOR TO THE GOVERNMENT IS SCHEDULED FOR MAY 1964  
THE PROGRAM IS ON SCHEDULE AND IT APPEARS THAT THIS DATE WILL BE MET. ABOUT  
30 DAYS BEFORE DELIVERY THREE EACH GOVERNMENT PERSONNEL WILL BE GIVEN PRELIMIN-  
ARY TRAINING [REDACTED] DURING THEIR CHECK OUT OF THE EQUIPMENT. FURTHER  
TRAINING WILL BE GIVEN TO GOVERNMENT PERSONNEL BY THE FACTORY REPRESENTATIVE  
IN MAY 1964 DURING THE FIELD INSTALLATION PERIOD, THE SCHEDULE PRESENTLY CALLS

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25X1A FOR TWO [ ] REPRESENTATIVES TO SPEND 15 DAYS EACH AT THE POINT OF  
DESTINATION.

25X1A THE COST OF THIS DEVELOPMENT IS [ ] GIMRADA IS COOPERATING IN  
THE DEVELOPMENT OF THIS ITEM.

THE ACTUAL ADVANTAGES AND LIMITATIONS OF THIS MACHINE IN THE PERFORMANCE  
OF THE PHOTO INTERPRETATION FUNCTIONS OF THIS AGENCY WILL NOT BE FULLY  
KNOWN UNTIL AFTER THE EQUIPMENT IS ON HAND AND SOME EXPERIENCE HAS BEEN  
GAINED IN ITS USE.

HOWEVER OTHER INTERESTED GOVERNMENT AGENCIES WILL BE GIVEN AN OPPORTUNITY  
TO BECOME FAMILIAR WITH THE INSTRUMENT AND TO ASSAY ITS APPLICABILITY TO  
THEIR OPERATIONS DURING THE EVALUATION OF THE MODEL.

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Next 8 Page(s) In Document Exempt

*File in Step & Repeat Printer*

TELEPHONE OR VERBAL CONVERSATION RECORD

Subject of Conversation

*make a Copy for Change Detection  
Requirement for high res Step & Repeat Printer*

Date

*11 Mar 64*

Telephone Number

25X1A

Information of Action Sought

25X1A

*[redacted] informed me that they are not going to bid on the Step & Repeat Printer.*

25X1A

*2. [redacted] requested that I come up with [redacted] on next visit.*

25X1A

25X1A

*3. [redacted] requested a meeting*

Information Given or Action Taken

*at the ASP on Thursday 19 MAR 64  
1:30 AM.*

25X1A

Date

Time

*11 Mar 64 1620*